

# **Implementation of Behavioural Safety in addition to a successful Near Miss Program at Lyondell**

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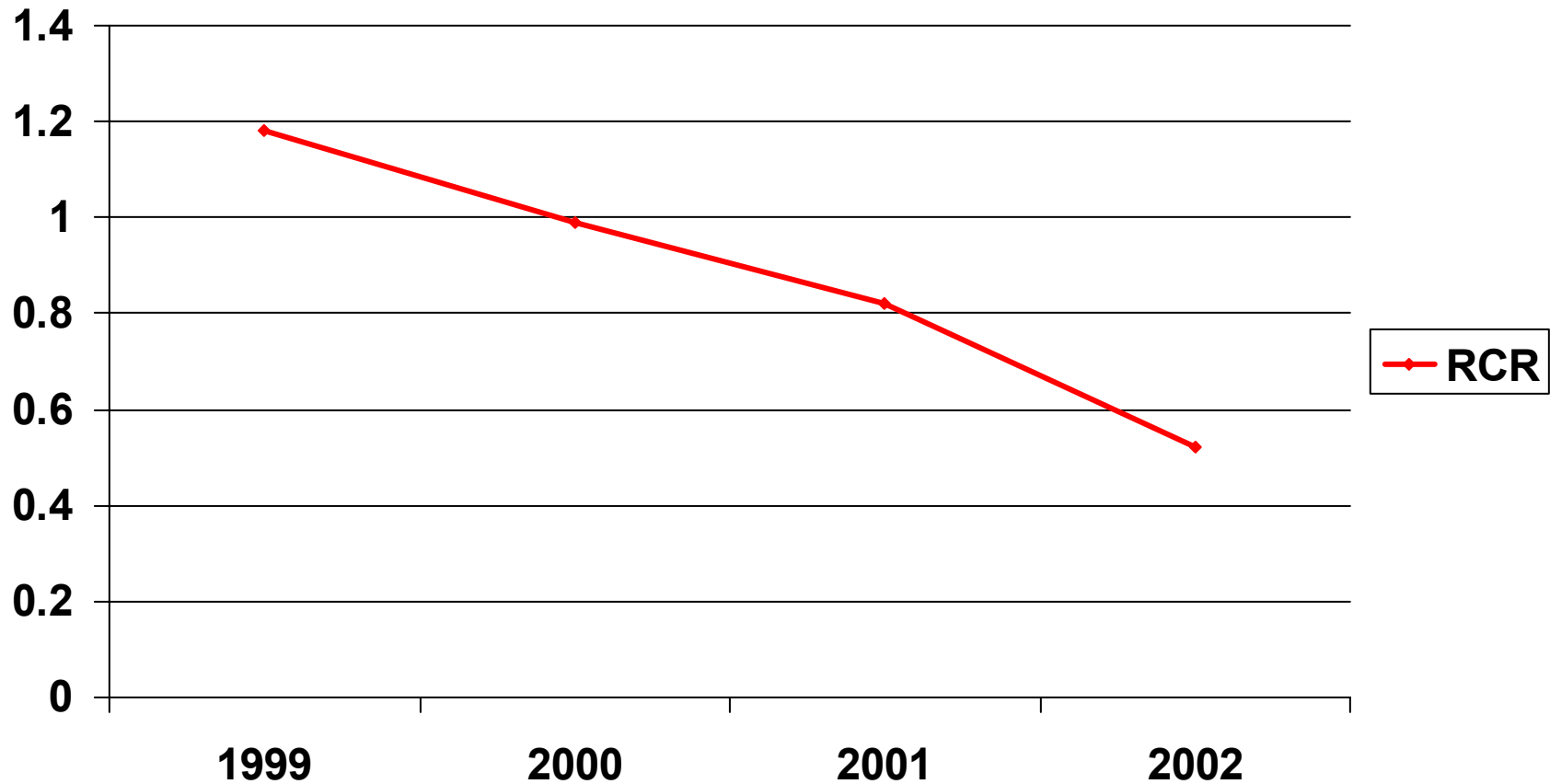
# Lyondell Chemical

- No1 producer in the US of C2= & C3= thru Equistar
- World largest producer of PO, 2 in MTBE and TDI,3 in Styrene
- Twenty two plants worldwide
- Personnel 7500
- Headquarter in Houston (TX)

# Lyondell Chemie Nederland BV

- 250 kt/ 590 kt/y PO/MTBE plant at Botlek
- 285 kt/ 640 kt/y PO/Styrene plant at Maasvlakte starts up Q3 2003
- Botlek plant:
  - 250 persons
  - Reliability 99% +

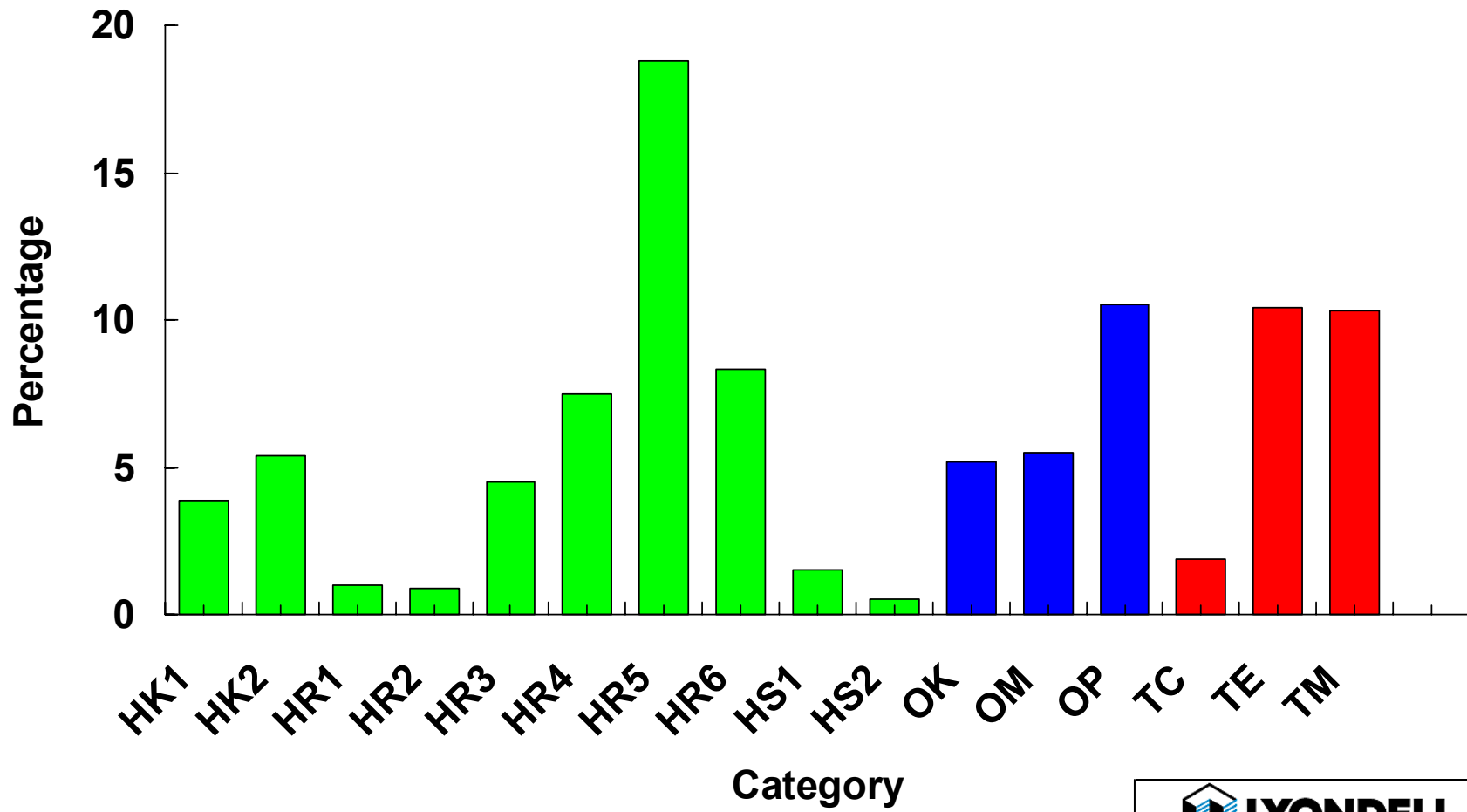
# Lyondell Corporation RCR



# Near Miss Program at Lyondell Botlek

- Started in 1994 in cooperation with the Technical University Eindhoven
- 17(16) root causes, in 3 main categories: technical, organizational, and human
- voluntary program with stimulation thru incentives:
  - near miss of the month/ year
  - plant target for the year
- prompt written feedback to every submitter of a near miss
- over 500 near misses yearly, with 30 % contractor participation
- over 50 % were human factors as root cause

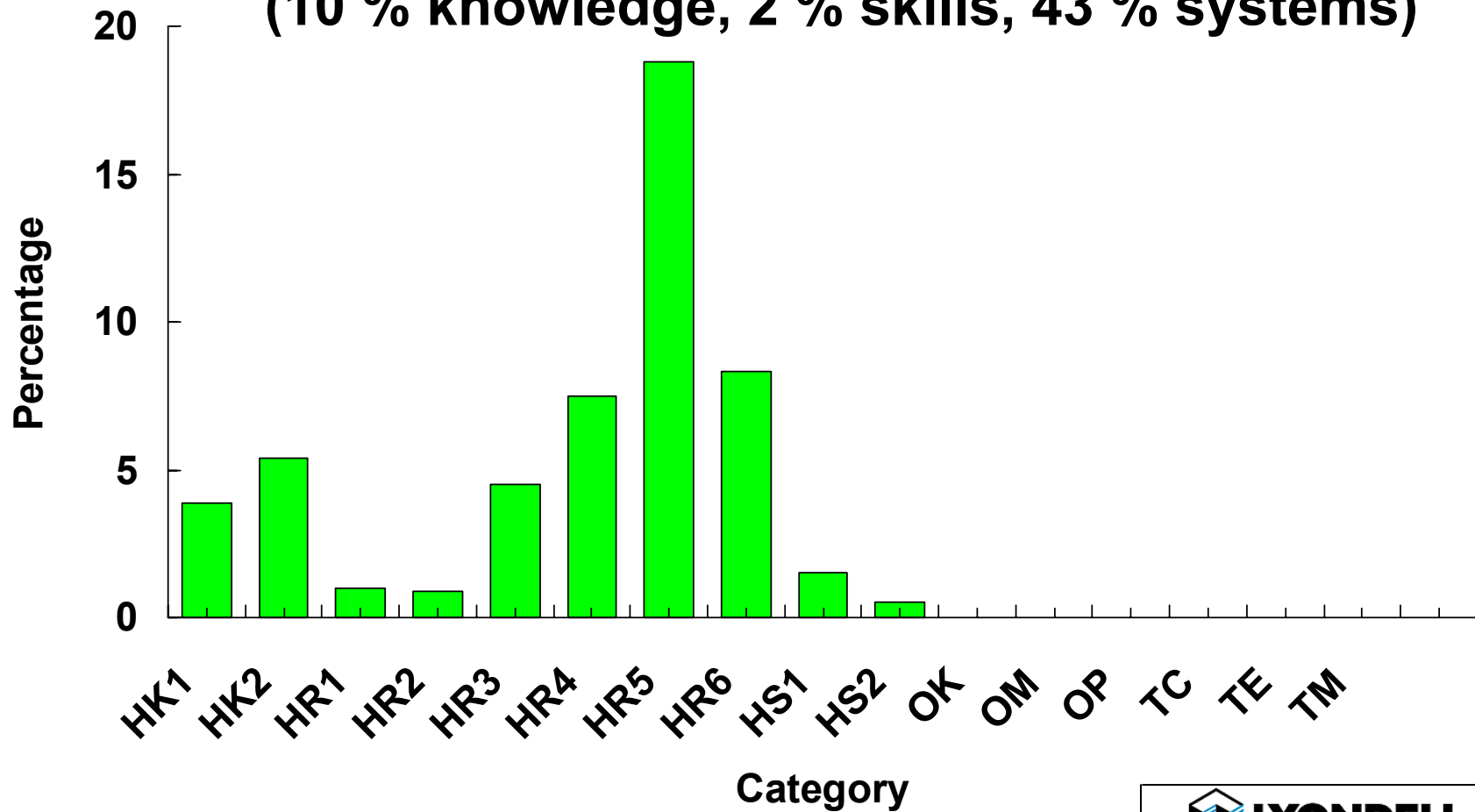
# Near miss root causes



# Near miss root causes

Human causes: total 55 %

(10 % knowledge, 2 % skills, 43 % systems)



# Behavioural Safety Program implementation:

- Three attempts to start:
  - in 1997 as a voluntary program with no general incentives
  - in 1998 with:
    - + a designated Behavioural Safety Coordinator
    - + half day training program for all observers
    - + peer/peer observations only
    - + in 1999 addition of:
      - prompt feedback form
      - observation of the month
  - in 2002 with:
    - + new name: SPOT
    - + quarterly themes
    - + not only peer/peer observations
    - + target of the number of observations for everybody(10)
      - + accountability for supervisors



# Learning Results for the process

- Include the supervisor in the process
- No blame
- Appoint a shift coordinator, but keep the responsibility in the line
- Integrate it in the Safety Management system to have the direct results visible

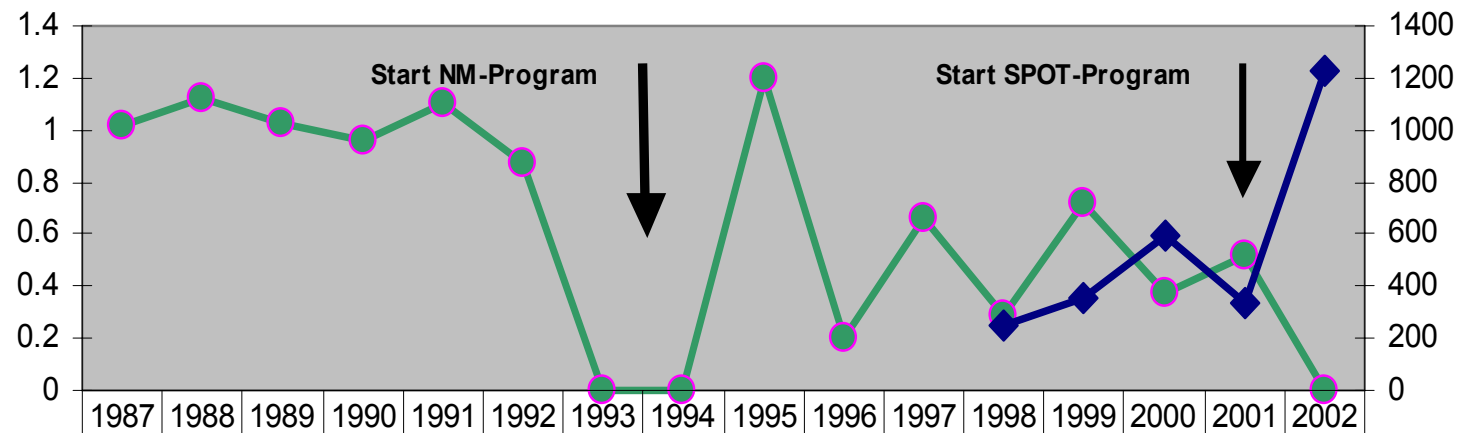
# Learning results for the people

- More risk conscious
- Better understanding of priority setting for safety issues
- Knowledge development on how to mitigate risks most efficiently
- Development of an open learning organization in which everyone is actively involved
- Better safety results

# Examples of identified projects

- Campaign “Exposure”:
  - Sample point adjustment
  - Breathing protection equipment improvement
  - Optimisation of gloves
- Campaign “Work permits”:
  - Discontinuation of our permits
  - Better understanding of permits
  - Better criteria for handing out permits

# RECORDABLE CASE RATE LYONDELL BOTLEK



● RCR	1.02	1.12	1.03	0.96	1.1	0.87	0	0	1.2	0.2	0.66	0.29	0.72	0.37	0.52	0
◆ Observations												245	359	595	339	1223

● RCR ◆ Observations

# Conclusions

- an open safety culture is not sufficient for the implementation of an observation program
- implementation of BSP programs needs full attention as required for a new program
- implementation of BSP programs needs a stable work environment
- the BSP program has improved the Lyondell safety results